IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

HARVEY R. BIALK et al.

Group Art Unit: 2623

Examiner: Satrarelli, Dominic D.

Serial No.: 09/851,285

Filed: May 8, 2001

For: METHOD AND SYSTEM FOR PROVIDING AN EFFICIENT USE OF BROADBAND NETWORK RESOURCES

Attorney Docket No.: 2001-0148

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Sir:

This is an Appeal Brief from the final rejection of claims 1-11, 17-25, and 27 of the final Office Action mailed April 5, 2006, for the above-identified patent application.

The Applicant filed a Notice of Appeal (mailed September 5, 2006) for this application. The two-month deadline for filing this Appeal Brief without an extension of time is Monday, November 6, 2006. As such, a check in the amount of $500.00 is enclosed to cover the appeal brief fee under 37 C.F.R. § 41.20(b)(2). Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

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I. REAL PARTY IN INTEREST

The real party in interest is AT&T Corp. ("the Assignee"), a corporation organized and existing under the laws of the state of Delaware, and having a place of business at 32 Avenue of the Americas, New York, New York 10013, as set forth in the assignment recorded in the U.S. Patent and Trademark Office on May 8, 2001 at Reel 011807 / Frame 0725.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to the Applicant (i.e., the Appellant), the Applicant's legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-11, 17-25, and 27 are pending in this application. Claims 12-16 and 26 have been cancelled. Claims 1-11, 17-25, and 27 (reproduced in the attached Claims Appendix) have been finally rejected in the final Office Action mailed April 5, 2006 and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

The Applicant filed an Amendment after Final on November 5, 2006, after the filing of the Notice of Appeal but prior to the filing of this Appeal Brief. In this Amendment, the Applicant cancelled claims 13-16; and amended claim 1 to comply with a requirement of form expressly set forth by the Examiner in the final Office Action mailed April 5, 2006. As the amendments to claim 1 remove issues for appeal, the Applicant believes that these amendments and the cancellation of claims 13-16 will be entered for this appeal. Thus, claim 1 presented in the attached Claims Appendix takes into account these amendments.

V. SUMMARY OF CLAIMED SUBJECT MATTER

1. Independent Claim 1

Independent claim 1 recites a hybrid fiber coax (HFC) network management system (16) for use in a broadband network (10) having a HFC network (12) having network elements (54, 56, 58, 60, 62, 66, 68, 70, 73) operable for communicating telephony, data, and video signals with customer-premises equipment (CPE) (14) of subscriber households. (FIGS. 1-4, 8, and 10-11; page 1, lines 13-16; page 3, lines 9-28; page 6, line 19 through page 7, line 18 of the Applicant's specification.) The network elements include a host digital terminal (HDT) (54) for communicating the telephony signals, a cable modem termination system (CMTS) (56) for communicating the data signals, and video equipment (58) for communicating the video signals. (FIGS. 1-3; page 3, lines 13-28; page 7, lines 4-15; and page 7, line 26 through page 8, line 21 of the specification.) A fiber optics network (12, 60, 62, 66) connects the HDT, CMTS, and video equipment to a fiber optics node (64). (FIGS. 1-3; page 3, lines 13-28; and page 8, lines 5-21 of the specification.) A coax cable network (12, 68, 70, 73) connects the fiber optics node to the CPE of the subscriber households. (FIGS. 1-3; page 3, lines 13-28; and page 8, lines 5-21 of the specification.)

The HFC network management system includes a service, design, and inventory (SDI) system (93) having a database (160). (FIGS. 3-4, 8, and 10-11; page 3, lines 13-28; page 11, lines 15-30; page 21, line 10 through page 23, line 8; and page 26, line 1 through page 27, line 2 of the specification.) The database is operable for storing data indicative of: an inventory of the network elements and the CPE in the HFC network and an inventory (48) of CPE (46) which are out of the HFC network; configuration and connectivity of the network elements and the CPE in the HFC network; and assigned capacity of the HFC network based on the configuration and the connectivity of the network elements and the CPE in the HFC network. (FIGS. 3-4, 8, and 10-11; page 3, line 13 through page 4, line 19; page 7, lines 16-

25; page 9, line 1 through page 10, line 8; page 10, lines 20-25; page 11, line 3 through page 12, line 8; page 12, line 24 through page 13, line 4; page 16, lines 3-17; page 18, lines 17-25; page 21, line 10 through page 25, line 11; and page 26, line 1 through page 27, line 2 of the specification.)

The HFC network management system further includes an online provisioning application link (OPAL) (95) operable with the database of the SDI system for provisioning: a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network; and network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements. (FIGS. 3-4, 8, and 10-11; page 5, lines 1-4; page 11, lines 15-30; page 12, line 29 through page 13, line 4; and page 26, lines 1-9 of the specification.)

2. Independent Claim 17

Independent claim 17 recites an HFC network management method for use in a broadband network (10) having a HFC network (12) provided with network elements (54, 56, 58, 60, 62, 66, 68, 70, 73) operable for communicating telephony, data, and video signals with CPE (14) of subscriber households. (FIGS. 1-4, 8, and 10-11; page 1, lines 13-16; page 3, lines 9-28; page 5, lines 5-6; page 6, line 19 through page 7, line 18 of the Applicant's specification.) The network elements include a HDT (54) for communicating the telephony signals, a CMTS (56) for communicating the data signals, and video equipment (58) for communicating the video signals. (FIGS. 1-3; page 3, lines 13-28; page 7, lines 4-15; and page 7, line 26 through page 8, line 21 of the specification.) A fiber optics network (12, 60, 62, 66) connects the HDT, CMTS, and video equipment to a fiber optics node (64). (FIGS. 1-3; page 3, lines 13-28; and page 8, lines 5-21 of the specification.) A coax cable network (12, 68, 70, 73) connects the fiber optics node to the CPE of the subscriber households. (FIGS. 1-3; page 3, lines 13-28; and page 8, lines 5-21 of the specification.)

The method includes storing, in a database (160), data indicative of an inventory of the network elements and the CPE in the HFC network and an inventory (48) of CPE which are out of the HFC network. The method further includes storing, in the database, data indicative of configuration and connectivity of the network elements and the CPE in the HFC network. The method further includes storing, in the database, data indicative of assigned capacity of the HFC network based on the configuration and the connectivity of the network elements and the CPE in the HFC network. (FIGS. 3-4, 8, and 10-11; page 3, line 13 through page 4, line 19; page 7, lines 16-25; page 9, line 1 through page 10, line 8; page 10, lines 20-25; page 11, line 3 through page 12, line 8; page 12, line 24 through page 13, line 4; page 16, lines 3-17; page 18, lines 17-25; page 21, line 10 through page 25, line 11; and page 26, line 1 through page 27, line 2 of the specification.)

The method further includes accessing, by an OPAL (95), the data stored in the database in order for the OPAL to provision: a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network; and network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements. (FIGS. 3-4, 8, and 10-11; page 5, lines 1-4; page 11, lines 15-30; page 12, line 29 through page 13, line 4; and page 26, lines 1-9 of the specification.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-11, 17-25, and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,608,447 issued to Farry et al. ("Farry") in view of U.S. Patent No. 5,519,830 issued to Opoczynski ("Opoczynski"), U.S. Patent No. 6,137,793 issued to Gorman et al. ("Gorman"), U.S. Patent No. 5,559,955 issued to Dev et al. ("Dev"), and U.S. Patent Application Publication No. 2002/0004390 issued to Cutaia et al. ("Cutaia").

VII. ARGUMENT

A. Claims 1-11, 17-25, and 27 are patentable under 35 U.S.C. § 103(a) over U.S. Patent No. 5,608,447 (Farry) in view of U.S. Patent No. 5,519,830 (Opoczynski), U.S. Patent No. 6,137,793 (Gorman), U.S. Patent No. 5,559,955 (Dev), and U.S. Patent Application Publication No. 2002/0004390 (Cutaia)

1. The Independent Claims

Independent claim 1 is directed to a hybrid fiber coax (HFC) network management system in a broadband network (10) having a HFC network. Independent claim 17 recites an associated HFC network management method.

As set forth in independent claims 1 and 17, the HFC network includes network elements operable for communicating telephony, data, and video signals with customer-premises equipment (CPE) of subscriber households. The network elements include a host digital terminal (HDT) for communicating the telephony signals, a cable modem termination system (CMTS) for communicating the data signals, and video equipment for communicating the video signals; a fiber optics network connecting the HDT, CMTS, and video equipment to a fiber optics node; and a coax cable network connecting the fiber optics node to the CPE of the subscriber households.

As set forth in representative independent claim 1, the HFC network management system includes a service, design, and inventory (SDI) system and an online provisioning link (OPAL). The SDI system has a database operable for storing data indicative of (i) an inventory of the network elements and the CPE in the HFC network and an inventory of CPE which are out of the HFC network; (ii) configuration and connectivity of the network elements and the CPE in the HFC network; (iii) assigned capacity of the HFC network based

on the configuration and the connectivity of the network elements and the CPE in the HFC network. The OPAL is operable with the database for provisioning (i) a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network; and (ii) network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements.

2. Farry in view of Opoczynski, Gorman, Dev, and Cutaia

In the final Office Action, the Examiner posited Farry discloses a broadband network having a HFC network having network elements operable for communicating telephony, data, and video signals with CPE of subscriber households, the network elements including video equipment for communicating the video signals, a fiber optics network connecting the video equipment to a fiber optics node, a coax cable network connecting the fiber optics node to the CPE, and an online provisioning application link (OPAL) (citing Fig. 1, level 1 gateway 160) operable for provisioning network elements with CPE based on the assigned capacity of the network elements (citing col. 7, lines 16-33).

The Examiner posited Opoczynski discloses a HDT for communicating telephony signals over a network. The Examiner posited Gorman discloses a CMTS for communicating data to CPE cable modems over a network.

The Examiner posited Dev discloses a network management system including a SDI database for storing data indicative of the configuration and connectivity of all network elements (citing database manager 16; col. 3, line 66 – col. 4, line 2; and col. 5, lines 26-44) and for storing data indicative of assigned capacity of the network based on the configuration and connectivity of the network elements (citing col. 5, line 66 – col. 6, line 12; and col 15, line 37 – col. 16, line 23).

The Examiner posited Cutaia discloses a provisioning/inventory database (citing database 312) that stores data indicative of an inventory of CPE both in use, and not in use and available for addition to a communications network, assisting in the addition of new CPEs to the network (citing paragraphs 42, 45, and 49).

3. The Independent Claims Compared to the Cited Art

Independent claims 1 and 17 differ from any combination of Farry, Opoczynski, Gorman, Dev, and Cutaia for at least two reasons. First, the SDI database stores data indicative of an inventory of CPE which are out of the HFC network, and the OPAL is operable with the database to provision a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network. Second, the SDI database stores data indicative of the assigned capacity of the HFC network based on the configuration and the connectivity of the network elements and the CPE in the HFC network, and the OPAL is operable with the database to provision network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements.

With respect to the first reason, the Examiner posited, as indicated above, Cutaia discloses a provisioning/inventory database (312) that stores data indicative of an inventory of CPE both in use, and not in use and available for addition to a communications network, assisting in the addition of new CPEs to the network (citing paragraphs 42, 45, and 49). However, Cutaia is directed to managing a "colocation facility". Cutaia describes a colocation facility as being a facility "in which communications equipment (e.g., racks, cabinets, switches, routers, and other equipment of different entities are physically positioned at a single geographic location, such as within the same building or the same floor of a building" (paragraph 0007). Cutaia provides an example of the use of such a colocation facility (50) (Fig. 1) in which "a web site owner could co-locate its web server with an ISP to which it is connected. In turn, the ISP could co-locate its router with equipment of a provider

of switching services" (paragraph 0007). As such, the entities using the colocation facility are "service providers" (paragraph 0009) and these service providers are "customers 5" of the colocation facility (Fig. 1; paragraph 0015). The customer service providers 5 arrange to have equipment installed/configured in the colocation facility by the colocation facility provider (e.g., sales agent 26, sales support module 20, engineering module 30) to provide telecommunications services to their users 7, who are also connected to the colocation facility (Fig. 1; paragraphs 0032, 0042, 0045). As such, users 7 have "CPE" for receiving the services. The colocation facility provider has an inventory of service provider equipment (such as "racks, cabinets, switches, routers, and other equipment") located in the colocation facility and out of the colocation facility (paragraph 0049). Regardless of the exact nature of the equipment in either inventory, such equipment is equipment associated with service provider customers 5 for providing services to their users 7 and is either located in the colocation facility or is standing by to be placed in the colocation facility. As such, the inventory of such equipment is not an inventory of CPE for subscriber households (i.e., users 7) which are out of a network.

Thus, Cutaia does not teach or suggest storing data indicative of an inventory of CPE which are out of the HFC network as claimed. Accordingly, the combination of the cited art does not teach or suggest storing data indicative of an inventory of CPE which are out of a HFC network, and an OPAL operable with the database to provision a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network as claimed.

With respect to the second reason, the Examiner posited, as indicated above, Farry discloses an OPAL (citing gateway 160) operable for provisioning network elements with CPE based on the assigned capacity of the network elements (citing col. 7, lines 16-33). Col. 7, lines 16-33 of Farry:

> To establish a communication session or connection through the network between an information service provider and a particular subscriber end device (e.g., the digital entertainment terminal described hereinafter with respect to FIGS. 13 and 14) requires establishment of a virtual circuit through ATM switch 510 and the distribution component 120.
>
> In the full service digital network, a PVC (permanent virtual circuit) controller 530 stores data tables defining possible virtual circuits through the ATM switch 510 and the distribution component 120 to each terminal (e.g. digital entertainment terminal (DET) 1600 of FIG. 16) of the subscriber subscribing to particular ISP services. These data tables define the header information and the particular fiber output needed to route cells to the correct distribution component as well as to the particular subscriber port servicing the DET requesting the service. The tables define permanent virtual circuits between the ISP's and the DET's.

As such, Farry discloses providing a CPE (i.e., DET) with access to an information service provider (ISP) by enabling a virtual circuit previously established between the CPE and the ISP. This cited portion of Farry does not describe the selection of one of the possible (permanent) virtual circuits between the ISP and the DET being based on assigned capacity of the virtual circuits or the equipment enabling such circuits. Thus, Farry does not teach or suggest provisioning network elements with CPE based on the assigned capacity of the network elements as claimed. Accordingly, the combination of the cited art does not teach or suggest storing data indicative of the assigned capacity of the HFC network based on the configuration and the connectivity of the network elements and the CPE in the HFC network, and the OPAL being operable with the database to provision network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements as claimed.

In view of the foregoing, independent claims 1 and 17 are patentable under 35 U.S.C. § 103(a) over Farry in view of Opoczynski, Gorman, Dev, and Cutaia. Claims 2-11, 18-25, and 27 depend from one of independent claims 1 and 17 and include the limitations of

their respective independent claim. Thus, claims 1-11, 17-25, and 27 are patentable under 35 U.S.C. § 103(a) over Farry in view of Opoczynski, Gorman, Dev, and Cutaia.

CONCLUSION

In view of the foregoing, the Applicant respectfully requests that the Board rules that claims 1-11, 17-25, and 27 are patentable over the 35 U.S.C. § 103 rejection set forth in the final Office Action mailed April 5, 2006.

Respectfully submitted,
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Enclosure - Appendices (pages 1-8)

VIII. CLAIMS APPENDIX

1. In a broadband network having a hybrid fiber coax (HFC) network having network elements operable for communicating telephony, data, and video signals with customer-premises equipment (CPE) of subscriber households, the network elements including a host digital terminal (HDT) for communicating the telephony signals, a cable modem termination system (CMTS) for communicating the data signals, and video equipment for communicating the video signals, a fiber optics network connecting the HDT, CMTS, and video equipment to a fiber optics node, and a coax cable network connecting the fiber optics node to the CPE of the subscriber households, an HFC network management system comprising:

a service, design, and inventory (SDI) system having a database operable for storing data indicative of an inventory of the network elements and the CPE in the HFC network and an inventory of CPE which are out of the HFC network, for storing data indicative of configuration and connectivity of the network elements and the CPE in the HFC network, and for storing data indicative of assigned capacity of the HFC network based on the configuration and the connectivity of the network elements and the CPE in the HFC network; and

an online provisioning application link (OPAL) operable with the database of the SDI system for provisioning a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network and for provisioning network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements.

2. The HFC network management system of claim 1 wherein:

the data indicative of configuration and connectivity of the network elements includes data indicative of physical and logical connections between the network elements.

3. The HFC network management system of claim 1 wherein:

the data indicative of configuration and connectivity of the network elements includes data indicative of physical and logical connections between the HFC network and the CPE.

4. The HFC network management system of claim 1 wherein:

the SDI system is operable to generate an SDI system report for at least one of a network element and a CPE, the SDI system report including information about the at least one network element and the CPE.

5. The HFC network management system of claim 1 wherein:

the data indicative of an inventory of the network elements and the CPE in the HFC network includes data indicative of subscriber households passed in the HFC network.

6. The HFC network management system of claim 5 wherein:

the data indicative of subscriber households passed in the HFC network includes for each subscriber household data indicative of the fiber node connected to the CPE of the subscriber household and the coax bus connecting the subscriber household to the fiber node.

7. The HFC network management system of claim 6 wherein:

the data indicative of subscriber households passed in the HFC network further includes for each subscriber household data indicative of household key, household address, and household location.

8. The HFC network management system of claim 1 wherein:

the data indicative of an inventory of the network elements and the CPE in the HFC network includes data indicative of physical location and identification of the network elements.

9. The HFC network management system of claim 1 wherein:

the data indicative of an inventory of the network elements and the CPE in the HFC network and an inventory of the CPE which are out of the HFC network includes data indicative of profiles of the network elements and the CPE.

10. The HFC network management system of claim 1 further comprising:

an HFC network manager operable for controlling the configuration and connectivity of the network elements and the CPE in the HFC network, wherein the database of the SDI system updates the stored data indicative of the configuration and the connectivity of the network elements and the CPE in the HFC network in response to the HFC network manager changing the configuration and the connectivity of the network elements and the CPE in the HFC network.

11. The HFC network management system of claim 1 further comprising:

a fault manager having an alarm visualization tool operable with the database of the SDI system for generating visual displays of the configuration and the connectivity of the network elements and the CPE in the HFC network.

17. A hybrid fiber coax (HFC) network management method for use in a broadband network having a HFC network provided with network elements operable for communicating telephony, data, and video signals with customer-premises equipment (CPE) of subscriber households, the network elements including a host digital terminal (HDT) for communicating the telephony signals, a cable modem termination system (CMTS) for communicating the data signals, and video equipment for communicating the video signals, a fiber optics network connecting the HDT, CMTS, and video equipment to a fiber optics node, and a coax cable network connecting the fiber optics node to the CPE of the subscriber households, the HFC network management method comprising:

storing, in a database, data indicative of an inventory of the network elements and the CPE in the HFC network and an inventory of CPE which are out of the HFC network;

storing, in the database, data indicative of configuration and connectivity of the network elements and the CPE in the HFC network;

storing, in the database, data indicative of assigned capacity of the HFC network based on the configuration and the connectivity of the network elements and the CPE in the HFC network; and

accessing, by an online provisional application link (OPAL), the data stored in the database in order for the OPAL to provision a CPE in the inventory of CPE which are out of the HFC network to be added into the HFC network and to provision network elements in the HFC network with the CPE added into the HFC network based on the assigned capacity of the network elements.

18. The HFC network management method of claim 17 wherein:

storing, in the database, data indicative of configuration and connectivity of the network elements includes storing data indicative of physical and logical connections between the network elements.

19. The HFC network management method of claim 17 wherein:

storing, in the database, data indicative of configuration and connectivity of the network elements includes storing data indicative of physical and logical connections between the HFC network and the CPE.

20. The HFC network management method of claim 17 further comprising:

generating an SDI system report for at least one of a network element and a CPE, the SDI system report including information about the at least one network element and the CPE.

21. The HFC network management method of claim 17 wherein:

storing, in the database, data indicative of an inventory of the network elements and the CPE in the HFC network includes storing data indicative of subscriber households passed in the HFC network.

22. The HFC network management method of claim 21 wherein:

storing, in the database, data indicative of subscriber households passed in the HFC network includes storing for each subscriber household data indicative of the fiber node connected to the CPE of the subscriber household and the coax bus connecting the subscriber household to the fiber node.

23. The HFC network management method of claim 17 wherein:

storing, in the database, data indicative of an inventory of the network elements and the CPE includes storing data indicative of physical location and identification of the network elements.

24. The HFC network management method of claim 17 wherein:

storing, in the database, data indicative of an inventory of the network elements and the CPE in the HFC network and an inventory of the CPE which are out of the HFC network includes storing data indicative of profiles of the network elements and the CPE.

25. The HFC network management method of claim 17 further comprising:

generating visual displays of the configuration of the network elements and the CPE in the HFC network.

27. The HFC network management method of claim 17 further comprising:

controlling the configuration and connectivity of the network elements and the CPE in the HFC network; and

updating the stored data indicative of the configuration of the network elements and the CPE in the HFC network in response to the HFC network manager changing the configuration and the connectivity of the network elements and the CPE in the HFC network.

IX. EVIDENCE APPENDIX

NONE.

X. RELATED PROCEEDINGS APPENDIX

NONE.